

Having described the invention, we claim:

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1. Apparatus comprising:

a hydraulic fluid operated automatic transmission for transmitting motive power from an engine of a vehicle to drive wheels of the vehicle;

a hydraulic fluid power assisted steering gear for effecting steering movement of steerable wheels of the vehicle, said steering gear including a fluid motor;

a body of hydraulic fluid for operating both of said automatic transmission and said steering gear;

a reservoir for storing a portion of said hydraulic fluid;

at least one pump connected with said reservoir for pumping hydraulic fluid between said reservoir and said automatic transmission and said fluid motor; and

a cooler for cooling said hydraulic fluid, said at least one pump being operative to pump hydraulic fluid between said reservoir and said cooler.

2. Apparatus as set forth in claim 1 wherein said at least one pump comprises:

a transmission fluid pump connected with said reservoir for pumping hydraulic fluid between said

reservoir and said automatic transmission at a relatively low pressure, and

a power steering pump connected with said reservoir and separate from said transmission fluid pump, for pumping hydraulic fluid between said reservoir and said fluid motor at a relatively high pressure.

3. Apparatus as set forth in claim 2 further comprising a plurality of power steering fluid lines interconnecting said power steering pump and said reservoir and said fluid motor for transmitting hydraulic fluid between said power steering pump and said reservoir and said fluid motor, said plurality of power steering fluid lines forming a fluid flow path of said hydraulic fluid for operating said steering gear that is connected in fluid communication with a fluid flow path of said hydraulic fluid for operating said automatic transmission.

4. Apparatus as set forth in claim 3 further comprising a filter for filtering said hydraulic fluid, said filter being located in the fluid flow path of said hydraulic fluid for operating said automatic transmission

and also being located in the fluid flow path of said hydraulic fluid for operating said steering gear.

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alt 5. Apparatus as set forth in claim 1 wherein said at least one pump that is operative to pump hydraulic fluid between said reservoir and said cooler is said transmission fluid pump.

6. Apparatus as set forth in claim 1 wherein said transmission fluid pump is connected in line between said reservoir and said power steering pump, said apparatus including a first output line for directing hydraulic fluid at a relatively low pressure from said transmission pump to said transmission and a second output line for directing hydraulic fluid at a relatively high pressure from said power steering pump to said steering gear.

7. Apparatus as set forth in claim 1 wherein said at least one pump comprises a single pump operative to output fluid at a pressure high enough to operate said power steering gear, a first output line for directing hydraulic fluid at a relatively high pressure from said single pump to said steering gear, a second output line

for directing hydraulic fluid at a relatively high pressure from said single pump to a pressure reducer, and a third output line for directing hydraulic fluid at a relatively low pressure from said pressure reducer to said automatic transmission.

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8. A method comprising the steps of:
 1. providing a body of hydraulic fluid;
 2. operating with the hydraulic fluid an automatic transmission to transmit motive power from an engine of a vehicle to drive wheels of the vehicle;
 3. operating with the hydraulic fluid a power assisted steering gear to effect steering movement of steerable wheels of the vehicle, the steering gear including a fluid motor;
 4. storing in a reservoir a portion of the hydraulic fluid that is used for operating both the automatic transmission and the steering gear;
 5. pumping hydraulic fluid between the reservoir and the automatic transmission and the fluid motor; and
 6. pumping hydraulic fluid between the reservoir and a cooler for cooling the hydraulic fluid.

9. A method as set forth in claim 8 wherein said step of pumping hydraulic fluid between the reservoir and the automatic transmission and the fluid motor comprises:

operating a transmission fluid pump connected with the reservoir to pump hydraulic fluid between the reservoir and the automatic transmission at a relatively low pressure, and

operating a power steering pump connected with the reservoir and separate from the transmission fluid pump to pump hydraulic fluid between the reservoir and the fluid motor at a relatively high pressure.

10. A method as set forth in claim 9 comprising the steps of:

connecting the transmission pump in line between the reservoir and the power steering pump;
directing hydraulic fluid at a relatively low pressure through a first output line from the transmission pump to the transmission; and

directing hydraulic fluid at a relatively high pressure through a second output line from the power steering pump to the steering gear.

11. A method as set forth in claim 8 wherein said pumping steps comprise operating a single pump operative to output fluid through a first output line at a relatively high pressure to the steering gear and through a second output line at a relatively high pressure to a pressure reducer and thence through a third output line at a relatively low pressure to the automatic transmission.

